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The Laverbread Industry in South Wales and the Laverweed

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The Laverbread Industry in South Wales and the Laverweed

PART I

THE LAVERBREAD INDUSTRY

OUTSIDE South Wales very little is known about the seaweed delicacy 'laverbread' (bara lawr in Welsh), although the bulk of the red seaweed Porphyra, used in its manufacture, is imported from coastal regions outside Wales. Practically the only local weed collected is boiled in small quantities by villagers for consumption amongst friends. One such instance was encountered at Mumbles, where about 12 lb of laverbread was made weekly from weed collected from the beach. This practice of individual laverbread making is dying out, being replaced by bulk manufacture for distribution to market and shops for market day and weekend sales. The supply of seaweed required for this larger scale concentrated manu-

TABLE 1

Quantities of Laverweed in cwt supplied to each producer in 1954 *and its source*

Producer	SOURCE								*Total for Year (cwt)*
	Cumberland	*Barrow*	*Cornwall*	*Stranraer*	*Dunbar*	*South Wales*	*North Wales*	*Ireland*	
1	384	62	89	331	—	21	32	—	919
2	322	132	13	433	$8\frac{3}{4}$	2	29	9	$948\frac{3}{4}$
3	9	—	$93\frac{1}{4}$	—	—	$26\frac{1}{2}$	—	—	$128\frac{3}{4}$
4	—	10	$20\frac{3}{4}$	$680\frac{1}{4}$	—	—	—	$33\frac{3}{4}$	$744\frac{3}{4}$
5	158	$41\frac{1}{4}$	$37\frac{3}{4}$	$408\frac{1}{2}$	$4\frac{1}{2}$	—	—	9	659
6	$2\frac{3}{4}$	$4\frac{3}{4}$	1	$41\frac{3}{4}$	$104\frac{1}{2}$	$2\frac{1}{2}$	$38\frac{1}{4}$	11	$206\frac{1}{2}$
7	$12\frac{1}{2}$	109	—	$16\frac{1}{2}$	—	—	—	9	147
8	—	—	—	$39\frac{1}{2}$	—	$45\frac{3}{4}$	4	$66\frac{1}{4}$	$155\frac{1}{2}$
9	—	—	—	49	—	—	—	—	49
10	—	—	41	—	—	—	—	—	41
11	—	—	—	—	$80\frac{1}{2}$	$12\frac{1}{2}$	—	—	93
12	—	—	—	$91\frac{3}{4}$	—	—	1	—	$92\frac{3}{4}$
13	—	—	—	$80\frac{1}{4}$	—	—	—	—	$80\frac{1}{4}$
Totals	$888\frac{1}{4}$	359	$295\frac{3}{4}$	$2,171\frac{1}{2}$	$198\frac{1}{4}$	$110\frac{1}{4}$	$104\frac{1}{4}$	138	$4,265\frac{1}{4}$
% *of total Weight*	20·8	8·4	7·0	50·9	4·7	2·6	2·4	3·2	

facture is maintained by permanent collectors from certain coastal strips, i.e., England (Cumberland and Cornwall), Scotland (Stranraer and Dunbar regions), and a small quantity from Ireland and Wales itself. Seaweed from all these shores is supplied to thirteen establishments in and near Swansea.

Data of the total quantities of seaweed arriving in South Wales for the year 1954 and for each of the producers numbered 1 to 13, together with its source are summarised in Table 1. At the bottom of the columns are given the total weight in cwt, and percentage received from each region. It is shown that Stranraer area supplied the greatest quantity or 50·9% of the total for the year. Actually, it is collected along the Irish Sea coast in the vicinity of Port Patrick, and along the West side of Luce Bay at Port William and Monreith Bay. The sacks of weed from the latter region are collected by van carrier and taken either to Newton Steward or Stranraer railway station, since the closing of the branch line from Newton Steward to Whithorn.

Next in quantity, 20·8%, came from the 20 miles of Cumberland coast which extends from St. Bees in the north to just south of Bootle in the south. This is followed by an 11 mile stretch of barren sandy beach, until Walney Island, off Barrow, is reached. It is here, along approximately 7 miles of beach on the seaward side of the island, that the seaweed dispatched from Barrow is collected. This represented 8·4% of the total imported into South Wales in 1954. Cornwall, having supplied 7·0%, came next. Here the weed is collected around Bude in the north and St. Ives, Penzance, Marazion and Helston in the south. Dunbar near Edinburgh followed by having sent 4·7%; then, in order of diminishing quantities, Ireland, having supplied 3·2%, South Wales 2·6%, and lastly North Wales 2·4%.

The Irish weed consisted of that collected near Campile (County Wexford), Kilkeel (County Down), Greenore and Dundalk (County Louth), Ballina and Blacksod (County Mayo), and Ballybunnion and Listowel (County Kerry). The North Wales supply was collected around Barmouth, Tonfanae and Llwyngwril (Merionethshire), and Llanwnda (Caernarvonshire). The South Wales weed came from Milford Haven (Pembrokeshire), and a very little from Bridgend (Glamorganshire), which amounted to only $2\frac{1}{2}$ cwt collected in the September.

In Fig. 1 are shown the positions of all the above collecting areas, and since the different localities in Ireland supplied greatly varying amounts, the weight dispatched (in cwt) is given for each Irish port. It seems a long distance to bring seaweed across Ireland from the west coast to South Wales and probably on this account the amount was only 37% of the total exported from Ireland. It was sent to three manufacturers, one of whom received $33\frac{3}{4}$ cwt or 4% of his yearly supply. The other two received 9 cwt each.

Of the six manufacturers shown in Table I to be receiving Irish weed, only No. 8 had supplies all the year round and this was from Dundalk and Greenore on the east coast, dispatched via Holyhead. The amount represents 42·6% of the total weed received during the year by this manufacturer. In the case of the other five, their major supply comes from elsewhere, and it is only to eke out their diminished resources during the adverse months of December to April that they go so far afield. Thus, of the total 138 cwt of Irish seaweed supplied to the six manufacturers, $75\frac{1}{4}$ cwt came from the east coast (Kilkeel, Dundalk and Greenore), 11 cwt from the south coast (Campile), and $51\frac{3}{4}$ cwt from the west coast (Listowel, Westport, Blacksod and Ballina regions).

Transport of the seaweed by train at least from Stranraer and Cumberland Barrow sections, is encouraged by the railway company, which has given it a special concession in a lowered freight charge on fast passenger trains. It is a flat levy by the bag and not by the distance.

On arrival at the manufacturers the weed is thoroughly washed four times in tap water, to remove all the sand, care being taken to remove any 'knots' or sand localised in twisted parts of the fronds. Consumers are extremely sensitive to sand, and will immediately change their retailer to one who sells the produce from another manufacturer if they find sand present in the laverbread. The weed is then boiled for 8 to 12 hours in a 60 gallon cast iron, open topped boiler ('copper') to which is added salt, at the rate of about 3 lb per cwt of weed, and sufficient water to allow cooking without burning. In winter, when the

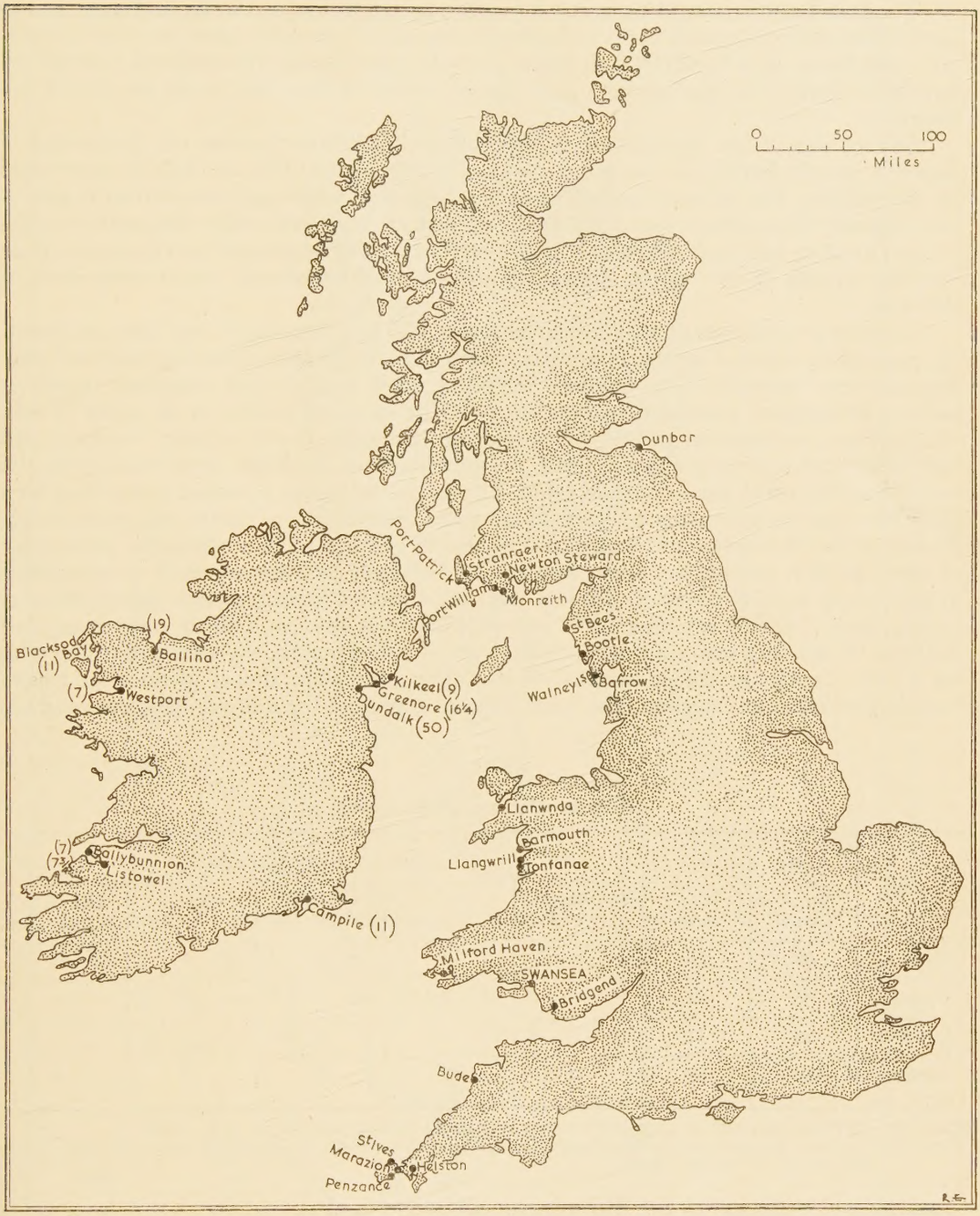


FIG. 1 *Collecting areas for laverweed.*

weed is tough, this is approximately 2 gallons per cwt of seaweed, but during the young, tender spring growth less water is needed. When the frond has been reduced almost to a pulp the weed is sufficiently cooked. It is then taken out of the boiler and allowed to stand overnight, usually on a wooden table which allows surplus liquid (if any) to drain away. Next day it is minced. The final blackish colour of the laverbread is due to added colour. Why a black colouration is favoured to a dark brown cannot be explained. The final product looks like a dark (almost black) shiny gelatinous mass which has a pleasant flavour of the sea; a taste identical with the smell of seaweed on the shore.

The laverbread is always prepared for eating by being warmed in fat and may or may not be first made into small cakes coated with oatmeal. It normally takes the place of eggs, etc., with bacon for a breakfast dish and it is usually eaten during the weekend. Consumers have great faith in its qualities as a good dietary source of iron, and in the fact that it is a laxative.

All but one of the manufacturers have other occupations besides the processing of seaweed, usually farming or market gardening. It is the womenfolk who sell the laverbread on the markets. On Swansea market there is a large stall where only laverbread is sold at the weekend. Numerous other stalls retail laverbread along with other commodities such as farm produce and cooked meats. It is also retailed by the Penclawdd cockle girls on their weekend rounds up the valleys. Between 3 and 4 cwt of laverbread is sold every week in this way.

A census as to the quantity of laverbread eaten, and how frequently, was taken amongst the population within a radius of approximately 7 miles of Swansea. One hundred and sixty persons were interviewed at random, including men, women and children, regarding persons of eighteen years and over as adults. This included people in all walks of life, viz., farmers, professional people, office and railway staffs, heavy industry workers, and both town and country dwellers. Table 2 summarises the findings. From this table it is shown that the usual size of portion eaten at a meal is 2–4 oz for a woman and 4–8 oz for a man. Also that the percentage of eaters of laverbread was 41·2% of the 69 men interviewed, 42·4% of the 65 women and 42·3% out of the 26 children. Thus taking the percentage of eaters in each section, i.e., men, women and children, the ratio of eaters to non-eaters in each group is fairly constant. Table 2 gives the numbers in each section eating amounts varying from 2 oz to 8 oz; columns 'a' represent the ones who eat it all the year round and columns 'b' the ones who eat it when there is an 'r' in the month, together with those who eat it only during the colder months. These latter groups are almost identical and have been bulked into one category. The 'rest' columns represent the non-regular eaters and are

TABLE 2

Census of Laverbread eaters

	Total No. inter-viewed	*Non-eaters*	*Quantities eaten at a meal*													
			Less than 2 oz			*2 oz*			*4 oz*			*8 oz*			*Over 8 oz*	
			a.	*b.*	*Rest*	*a.*	*b.*	*Rest*	*a.*	*b.*	*Rest*	*a.*	*b.*	*Rest*	*a.*	*b.* *Rest*
Men	69	28	—	—	—	2	1	1	8	6	6	10	1	4	2	— —
Women	65	28	—	—	3	7	4	2	10	5	5	—	—	1	—	— —
Children	26	11	—	—	—	13	1	1	—	—	—	—	—	—	—	— —
TOTALS	160	67	3			32			40			16			2	

Cols. ' a ' represent the number of persons eating laverbread once a week all the year round.
Cols. ' b ' represent persons who eat laverbread during the colder months together with those who eat it when there is an ' r ' in the month.

summarised as follows. In the case of men eating 2 oz, the one man ate laverbread about once a month; of the six eating 4 oz, four ate it once a month, one about three times a year and another twice a week. In the 8 oz category, three had laverbread once a month and one about three times a year. Next, taking the case of women, the three who ate less than 2 oz did so occasionally and could be included in the non-eaters, as they partake of this minute quantity about once every three months. Of those who ate 2 oz, both had laverbread once a month; of the five in the 4 oz column, four ate it about once a month and one once every three months. Only one woman was found who liked any quantity over 4 oz, and she had it once a month. Children are more precise. They either like or dislike the laverbread. The non-eaters may have taken a dislike to the general appearance and refused to taste it, or do not get it because their parents are not fond of laverbread. The eaters in children all appear

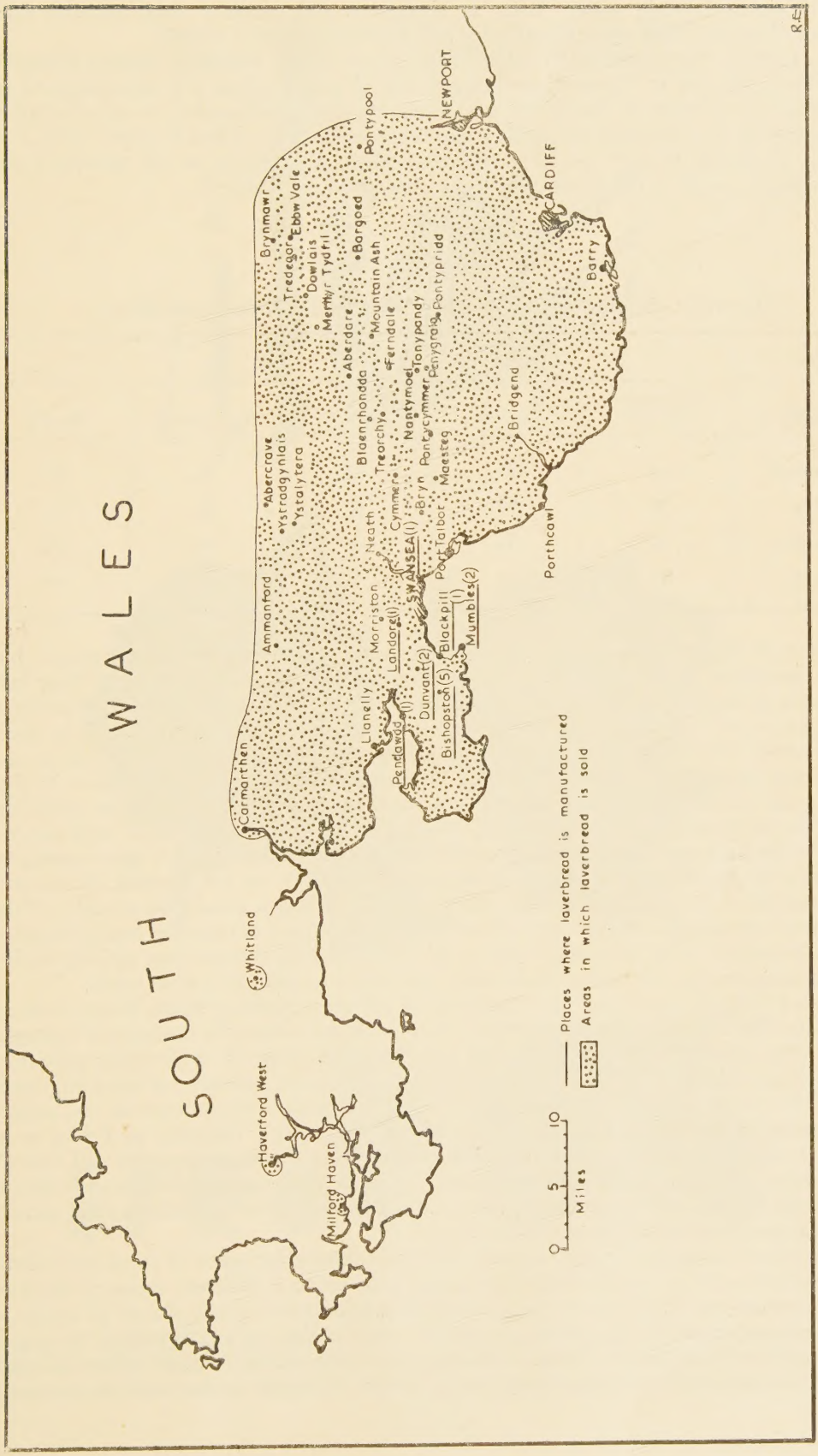


FIG. 2 *Map showing the area of sale of laverbread in South Wales.*

to eat 2 oz at a meal, which looks as if that is the quantity their parents think sufficient. The one child non-regular eater had laverbread once a month.

The bulk of the laverbread is eaten in the South Wales industrial region extending mainly from Llanelly to Newport, as shown in Fig. 2. Places where it is manufactured are underlined and in brackets beside the place name is given the number of manufacturers.

Markets for the prepared commodity have been extended to a few English towns, e.g., Reading, Coventry, Bristol, Yeovil and Bournemouth. A summary of the quantities sent to some towns is given for September-December, 1954, in Table 3.

TABLE 3

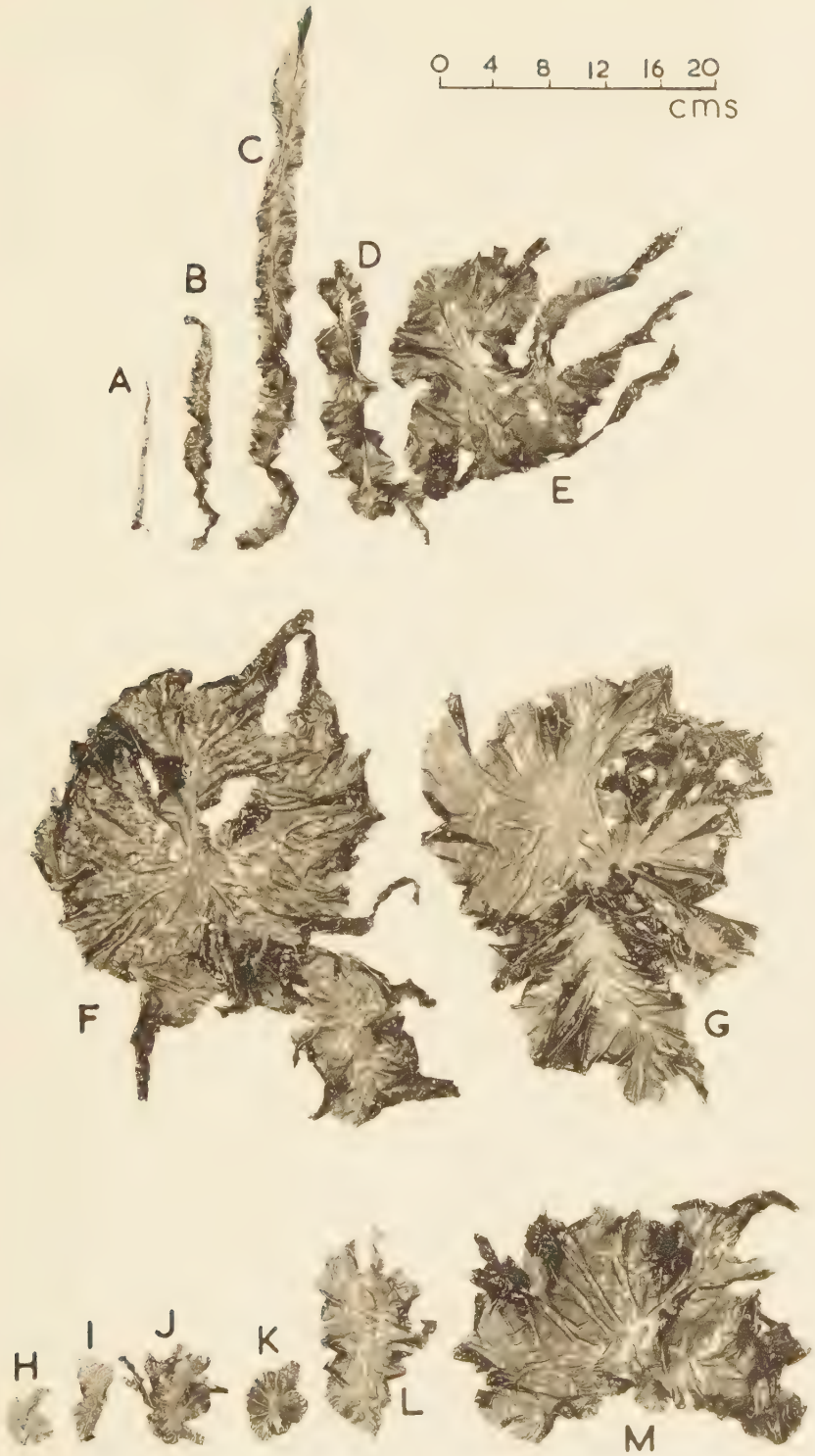
Quantities of Laverbread in lb sent to some towns outside South Wales

1954	TOWN				
Month	*Aberystwyth (Wales)*	*Bristol*	*Coventry*	*Bournemouth*	*Reading*
September	104	180	41	45	39
October	82	185	56	45	21
November	84	174	69	62	32
December	101	218	99	47	16

'Laver', as Porphyra is termed by some collectors, is gathered all the year round, but as with numerous other commodities, the laverbread-eating community have their fads and fancies as to when it should be eaten. Many have an obstinate resistance to eating it when there is no 'r' in the month and can on no account be induced to do so. It is no mere coincidence that this state of affairs exists. It is true that during the late spring (May) and the summer months until about September in a normal year, the laverbread loses its sea-shore flavour and becomes almost tasteless, but how this got connected with the game law of an 'r' in the month cannot be explained. The loss in flavour may not occur until the end of June when May and June are exceptionally cold, and is probably due to deterioration in the quality of the seaweed during its transportation in sacks. In hot weather the weed is almost certain to become heated, and under such conditions it would rot quickly. If the condition of the seaweed is not ideal before the commencement of manufacture the finished product cannot be of its usual high quality. Also the laverbread turns sour quickly during very hot weather and this would cause some consumers to shun it at such times.

Table 4 gives the total monthly quantities of seaweed reaching South Wales from all sources for 1954. These figures show that a fairly constant amount is maintained throughout the year, although during the warmer months, when there is an abundant growth, a lowered demand for laverbread restricts and slightly lowers the quantities of weed imported. During the winter months, however, there is a ready market which exceeds the supply and customers have to purchase their weekend laverbread on a Thursday or Friday so as not to be disappointed. It is at this time of the year that the manufacturers will take all the weed they can get, but supplies are reduced because of the poverty of the crop due to depreciation of plant communities by gales, slower growth rates, a small seasonal growth and difficulties in gathering due to bad weather.

Pickers harvesting the Porphyra must study their particular piece of coast and have a good knowledge of the weed's relative position on the shore at different times of the year. Those who have the right to a stretch of shore (by payment of a yearly due of £1 a year to the landowner), usually treat it as they would their own garden, especially during the winter months, preserving certain areas until maximum growth is reached and travelling in a sort of crop rotation up and down their coastal strip. Others, who pick on shores where the beach



Porphyra umbilicalis

evelopment of the adult plant from the winter and early spring ribbon-like form known as *P. linearis*, (A–C) to the ult *P. umbilicalis* (E–G). D is the transition stage from the ribbon form to the adult umbilicate type.

evelopment of young, round or oval, late spring, summer, and early autumn plants to adult umbilicate plants (H–M).

PLATE I [Photo: R. Elms]

TABLE 4

Total monthly supplies of seaweed to South Wales in 1954

	January	*February*	*March*	*April*	*May*	*June*
Quantity in cwt, qr and lb ..	313–3–22	336–0–22	412–1–4	402–3–2	346–3–5	308–1–21
	July	*August*	*September*	*October*	*November*	*December*
Quantity in cwt, qr and lb ..	289–2–1	325–2–2	339–3–21	392–3–11	419–2–2	377–1–13

is free for all, do not exercise a methodical picking; they pick where they find the best growth, as they know that if they do not, some other pickers, usually casuals, will do so.

PART II

THE LAVERWEED

PORPHYRA, which is a member of the Rhodophyceae or Red Algae, is generally found as a distinct community. Two species are widely collected for laverbread preparation, as they are the two more commonly found in good supply along the coast. They are *Porphyra leucosticta* and *Porphyra umbilicalis*. The two plants are difficult to distinguish without close examination. One cannot be content to describe each by terms of colour, consistency, shape and general appearance. Such characters are subject to so much modification, dependent on ecological conditions, that they are for the most part unreliable. The two above Porphyras are described as being purplish-red in colour but this is by no means constant as they can range from a hazel to a blackish-brown shade. Colour varies much with age, state and environment of the plant. It may also vary within a single plant, depending upon the fleshiness of the whole frond being thinner and lighter along the margins. Collectors of the seaweed in one region pick the weed nearly at its lower limits, i.e., nearer low water mark during the summer months, as the seaweed is darker and greater in size than the same species nearer high water, where it is exposed longer to the direct rays of the sun.

Similarly, in respect of consistency, the thallus varies, ranging from fleshy to delicately membraneous. Again, the form, though to some extent characteristic, also varies with age, habitat and other circumstances of the plant, and is in itself insufficient to determine the species. Plants can be dwarfed and tufted, or large and flat; smooth or crinkled; round, lanceolated or linear; they may have entire margins or may have become irregularly cut and lobed, assuming a variety of shapes according to the degree of violence of the waves to which they are subject. Shape, length and width of fronds seem closely related and are evidently determined by the same conditions of age, zone and locality. It would be difficult to say which of the three agencies exerts the greatest influence on the plants, as all seem to be of equal importance. Thus colour, consistency and form cannot usually be employed as specific determinants of species, except cautiously in conjunction with other characteristics.

General descriptions of the two species of Porphyra are as follows:

1. *Porphyra leucosticta* Thur. Here the thallus is purplish-red with a short stalk and attached to the substratum by a minute disc. When young, round or oval in shape, later broad and leaf-like, rarely a little lobed with an undulating margin, 10–40 cm in length. Usually found in spring or early summer as an epiphyte on larger algae but also on the bare rock. Spermatia (male reproductive organs) in longitudinal patches in the upper part of the frond.

2. *Porphyra umbilicalis*. J. G. Agardh., var *laciniate* Kutz., var. *linearis* Harv. The thallus is the same purplish-red colour as *P. leucosticta* and also very similar in shape. At first it is lanceolate or linear, later broad and irregularly divided into several lobes. The point of attachment to the substratum is frequently within the front and so makes the plant umbilicate (Plate I.G). It can be distinguished from *P. leucosticta* by the marginal position of the spermatia (pollen in flowers). *P. umbilicalis* has two other distinct vegetative forms which are known under the varieties *P. linearis* and *P. laciniata*. The form assumed by the plant, however, is governed by the habitat and season.

P. umbilicalis occurs on exposed coasts in the upper littoral zone just below the upper band of seaweed which is *Pelvetia*, one of the common Fucaceae (Browns). In such a situation it forms bands or patches on the rocks, or should mussel beds be present in this position, is a noticeable inhabitant of the community. With increasing shelter its growth extends seaward and may even reach low water mark. During autumn and winter, denudation of the crop by gales occurs and the remaining winter plants become stunted and may die back, but they do not wholly disappear. Carpospores (seeds of algae), liberated during the later months of the year, germinate to give the narrow ribbon-like growth of the tapering variety *P. linearis* which becomes conspicuous during winter and early spring. This plant is so distinct in outward form from the normal *P. umbilicalis* type that it was long considered a separate species. (Plate I. A, B and C). It is, however, merely the winter and spring form of *P. umbilicalis* which towards April begins to widen by marginal growth, (Plate I, D) and to become gradually transformed into the lobed umbilicate type. (Plate I. E, F and G). During other times of the year, i.e., spring to summer, the carpospores germinate to produce young plants which are round or oval in shape and soon develop the form of the adult umbilicate plant. (Plate I. H to M). The form of *P. umbilicalis* which grows along sheltered coasts is the variety *P. laciniata*. It is richly lobed and rather lanceolate in shape, as in L in Plate I. Though occurring throughout the year it is more prominent during spring and autumn. When the substratum is moist, the form of the plant is that for the variety *P. laciniata*, but as the rocks become dryer the fronds tend to become shorter and assume the umbilicate form characteristic of exposed coasts. (Plate I. H,J,K, and M.)

It appears that the major reliable difference between the two species is that of the position of the spermatia. In *P. leucosticta* they are formed in longitudinal patches and in *P. umbilicalis* in the margin of the frond.

Porphyra will not grow on rough coasts, where the beach consists of large pebbles and small boulders which have smooth surfaces, with no suitable crevices for the initial lodgement of spores, and where there is no sand. On the other hand the instability of an entire sandy or shingle beach is a prohibitive to the development of sporelings. Ideal conditions are on stretches of small boulders on a sandy beach. In such a case the boulder sits in a small pool of water when the tide recedes, into which the tips of the lower pendent plants extend. When the seaweed is left uncovered by the sea and exposed to the drying winds, the plants nearer the top of the stones form a cloak over the plants anchored lower down and so protect them from desiccation. On windy days the uppermost plants may become bone dry in appearance but recover as soon as they are moistened. These topmost plants may often look olive green in colour, whilst the underneath plants are a brown-black as they hang from the intertidal rocks.

Porphyra attains its maximum development in water of lower salinity. Fresh water percolating or seeping through the sand or shingle from adjoining land drainage or definite streams is nearly always found near good growths of Porphyra. This increased growth may not be due to lowered salinity but to the additional inorganic substances brought in with the fresh water.

Amongst the seaweeds of commercial importance, the genus Porphyra occupies a high position owing to the quantity eaten and the ease of its preparation for consumption. It is surprising, however, that it is not generally eaten in other parts of the country besides South Wales, in spite of the fact that there is a luxurious growth of harvestable weed in the collecting areas. This seaweed eating habit must be old and must still have a strong hold, as the winter demand for laverbread is increasing and not diminishing, giving an indication that the younger generations have acquired a favourable palate for the dish.

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